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10/626,735	07/25/2003	Leonard Forbes	M4065.0181/P181-B	9702

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EXAMINER	
TRA, ANH QUAN	

ART UNIT	PAPER NUMBER
2816	

DATE MAILED: 01/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H·A

Office Action Summary	Application No.	Applicant(s)	
	10/626,735	FORBES, LEONARD	
	Examiner	Art Unit	
	Quan Tra	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *67-89 and 92-98* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *67-89 and 92-98* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/03/04 has been entered. A new ground of rejection is introduced.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "signal source having first and second outputs coupled to the first and second transmission members" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement

Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 67-89 and 92-98 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The original specification fails to teach the "signal source having first and second outputs coupled to the first and second transmission member".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 67-77, 79-82, 88-89, 92-94 and 97-98 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura et al. (USP 5376842) in view of Doblar et al. (USP 6477205).

As to claim 67, Nishimura et al. discloses in figure 5 a signal transmission system comprising: a first transmission member (line coupled between nodes 5A and 5C) having a first length, the first transmission member including a transmission medium (inherent); a second transmission member (line coupled between nodes 5A and 5D) having a second length, the second transmission member including the transmission medium (inherent); a signal source (10) having first and second signal outputs (as best understood, the two output terminals are the same because the first and second transmission members receive the same signal) coupled to the first and second transmission members respectively; and an impedance adjusting component (C12) coupled to the second transmission member and adapted to affect, by the coupling thereto, a signal propagation factor (signal delay) of the second transmission member, whereby a relationship may be established between respective transmission times through the first and second transmission members of first and second signals received at the first and second transmission members from the respective first and second signal source outputs. Thus, figure 5 shows all limitations of the claim except for a termination circuit connected to at least one of the first transmission member and the second transmission member. However, it is notoriously well known in the art that termination circuit is for reducing signal reflection, thereby saving power consumption. Doblar et al.'s figure 8 shows a termination circuit 108 coupled to clock line 86 for reducing the signal reflection in the clock line. Therefore, it would have been obvious to one

having ordinary skill in the art to add termination circuit for each of the clock lines in Nishimura et al.'s figure 5 for the purpose of saving power consumption.

As to claim 68, the modified Nishimura et al.'s figure 5 shows all limitations of the claim except the impedance adjusting component comprises: an electrical inductor. However, it is notoriously well known in the art that the impedance of parallel connected capacitor is equal to the impedance of serial connected inductor (impedance of capacitor is $1/j\omega C$, and impedance of inductor is $j\omega L$). Therefore, it would have been obvious to one having ordinary skill in the art to use series connected inductors for the impedance adjusting component due to doctrine equivalent function.

As to claims 69 and 95, the modified Nishimura et al.'s figure 5 fails to shows the electrical inductor comprises a spiral inductor. However, it is well known in the art that spiral inductor is used in high speed environment. Therefore, it would have been obvious to one having ordinary skill in the art to use spiral inductors for the impedance adjusting component for the purpose of operating in a high speed environment.

As to claim 70, the modified Nishimura et al.'s figure 5 shows impedance adjusting component comprises: a material (the newly added inductors) having; a magnetic permeability, the material adapted to be incorporated into the second transmission member.

As to claim 71, figure 5 shows the impedance adjusting component comprises: an electrical capacitor (C12).

As to claim 72, figure 5 shows the relationship established between respective transmission times that comprises equalization of the respective transmission times (column 4, lines 31-45).

As to claim 73, figure 5 shows the first length is different from the second length and the respective transmission times through the respective first and second transmission members are equal (column 4, lines 31-45).

As to claim 74, it is inherent that the transmission medium comprises an electrical transmission medium.

As to claim 75, figure 5 shows the electrical transmission medium comprises a first conductor (line coupled between nodes 5A and 5C), a second conductor (line coupled between nodes 5A and 5D), and a dielectric material (inherent) disposed between the first conductor and the second conductor.

As to claim 76, figure 5 shows the electrical transmission medium comprises a first conductor (line coupled between nodes 5A and 5C); a second conductor (line coupled between nodes 5A and 5D); and an evacuated region (inherent) disposed between the first conductor and the second conductor.

As to claim 77, figure 5 shows the electrical transmission medium comprises first and second conductors (lines coupled between nodes 5A and 5C and between node 5A and 5D) disposed in a coaxial relationship to one another and a dialectic medium disposed between the first and second conductors.

As to claim 79, the modified figure 5 Nishimura et al.'s figure 5 fails to shows the capacitor C12 comprises a plurality of capacitors. However, it is notoriously well known in the art that a capacitor can be made by plurality of small capacitor connected in parallel (Ctotal = C1+C2+...Cn). Therefore, it would have been obvious to one having ordinary skill in the art to

use plurality of parallel capacitors for Nishimura et al.'s capacitor 12 in order to meet a desired capacitance.

As to claim 80, figure 5 shows the first and-second signals comprise first and second digital signals.

As to claim 81, figure 3 shows first and second signal receivers (11-1, 11-2) coupled to the first and second transmission members at respective first and second signal inputs.

As to claim 82, the modified Nishimura et al. shows the first input has an input impedance substantially equal to a characteristic impedance of the first transmission member (because of the newly added termination circuits) and the second input has an input impedance substantially equal to a characteristic impedance of the second transmission member.

As to claim 88, the modified figure 5 shows a signal transmission system comprising: a signal source (10) having first and second signal outputs; a first transmission member (line between nodes 5A and 5C) coupled to the first output, the first transmission member having a first length, the first transmission member including a first transmission medium (inherent) having a first characteristic impedance; a second transmission member (line between node 5A and 5D) coupled to the second output, the second transmission member having a second length, the second transmission member including a second transmission medium having a second characteristic impedance, whereby a relationship may be established between respective transmission times through the first and second transmission members of first and second signals received at the first and second transmission members from the respective first and second signal source outputs; a termination circuit (newly added) connected to at least one of said first

transmission member and the second transmission member for terminating at least one of the first transmission member and the second transmission member.

As to claim 89, it is inherent that the first characteristic impedance depends on a magnetic permeability of a material of the first transmission medium.

As to claim 92, the modified figure 5 shows a method of synchronizing first and second operations of respective first and second circuits (11-1, 11-2) comprising: receiving a first signal transition at the first circuit through a first transmission member (line between nodes 5A and 5C), the first transmission member having a first signal propagation factor and a first geometric length, the first signal propagation factor related to a first characteristic impedance of the first transmission member; receiving a second signal transition at the second circuit through a second transmission member (line between nodes 5A and 5D), the second transmission member having a second signal propagation factor and a second geometric length, the second signal propagation factor related to a second characteristic impedance of the second transition member, the second geometric length different from the first genetic length; terminating the first characteristic impedance of the first transmission member and the second characteristic impedance of the second transmission member; and receiving the first and second signal transitions at the first and second transmission members synchronously.

As to claim 93, figure 5 shows the receiving the first and second signal transitions at the first and second transmission members synchronously comprises receiving the first and second signal transitions at the first and second transmission members substantially simultaneously.

As to claim 94, figure 5 shows the second characteristic impedance depends on an impedance of at least one impedance (of C12) modifying component coupled to the second transmission member.

As to claim 96, figure 5 shows the impedance modifying component comprises a capacitor.

As to claim 97, figure 5 shows the second characteristic impedance depends on a magnetic permeability of a material incorporated into the second transmission member (it is inherent the transmission lines have parasitic inductance).

As to claim 98, the modified figure 5 shows the termination circuit terminates at least a first characteristic impedance of the first transmission member and the second characteristic impedance of the second transmission member.

7. Claim 78 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant admitted prior art in view of Nishimura et al. (USP 5013942).

As to claim 78, Applicant admitted in the "back ground of invention" that clock distribution circuit is used in optical medium. The prior art fails to shows a detail of the clock distribution. However, the modified Nishimura et al.'s figure 5 shows a detail of clock distribution circuit (see the rejection of claim 67) having the advantage of reducing clock skew. Therefore, it would have been obvious to one having ordinary skill in the art to use Nishimura et al.'s clock distribution circuit in an optical medium for the purpose of reducing clock skew.

8. Claims 83-86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura et al. (USP 5013942) in view of Applicant admitted prior art in (USP 6377084).

As to claim 83, the modified Nishimura et al.'s figure 5 shows all limitations of the claims except for the first signal receiver comprises a pseudo differential amplifier. However, the admitted prior art figure 2 in USP 6377084 shows a pseudo differential amplifier that can response more rapidly than other amplifier. Therefore, it would have been obvious to one having ordinary skill in the art to use the prior art figure 2 for Nishimura et al.'s receivers for the purpose of improving the operational speed.

As to claim 84, the prior art figure 2 in USP 6377084 shows the pseudo differential amplifier comprises a current sense amplifier and wherein the first signal comprises a current signal.

As to claim 85, the prior art figure 2 in USP 6377084 shows the current sense amplifier comprises a current mirror circuit (T5, T6).

As to claim 86, the modified Nishimura et al. fails to teach the first receiver comprises a first input adapted to be coupled to the first transmission member and a second input adapted to be coupled to a reference signal source. However, the admitted prior art figure 1 in USP 6377084 shows a receiver comprises a first input adapted to be coupled to a transmission member and a second input adapted to be coupled to a reference signal source (ground). The prior art figure 1 having the advantage of rejecting power supply noise. Therefore, it would have been obvious to one having ordinary skill in the art to use the prior art figure 1 in USP 6377084 for Nishimura et al.'s receivers for the purpose of rejecting power supply noise.

9. Claim 87 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant admitted prior art in (USP 6377084) in view of Nishimura et al. (USP 5013942).

As to claim 87, the prior art figure 2 in USP 6377084 shows a signal transmission system comprising: a first transmission member (I1) having a first length, the first transmission member including a transmission medium (inherent); a second transmission member (I2) having a second length, the second transmission member including the transmission medium (inherent); a signal receiver (the differential amplifier) having first and second signal inputs coupled to the first and second transmission members respectively; first and second signal generators (the transistors that generate Isignals) coupled to the first and second transmission members respectively. Thus, figure 2 shows all limitations of the claim except for "an impedance adjusting component coupled to the second transmission member". However, the modified Nishimura et al.'s figure 5 (see the rejection of claim 67) shows a signal transmission system having an impedance adjusting component (C12) coupled to the second transmission member (line between nodes 5A and 5C) in order to reduce clock skew. Therefore, it would have been obvious to one having ordinary skill in the art to add an impedance adjusting component to one of the transmission member in the prior art figure 2 of USP 6377084 for the purpose of reducing signal skew.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan Tra whose telephone number is 571-272-1755. The examiner can normally be reached on 8:00 A.M.-5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Quan Tra
Primary Examiner

January 24, 2005